MIDI

INTERFACE

COMPUTER CONTROL FOR
MIDI EQUIPPED SYNTHESIZERS

USERS MANUAL

FOR COMMODORE 64

YAMAHA COMBO PRODUCT
LIMITED WARRANTY 1 YEAR PARTS & LABOR

Warranty provisions can be a vitally important part of your purchase. Please read the enter warranty statement in order that you may be familiar with the terms applicable to the Yamaha Combo Product Warranty. If you have any questions, please contact your authorized Yamaha Combo Product Dealer or contact Yamaha directly.

CONDITIONS OF WARRANTY

If during the one (1) year period that immediately follows the date of original purchase* your Yamaha Combo Product is found to have a defect in material or workmanship, Yamaha and/or its authorized retailer or agent will repair such defect without charge for parts or labor.

This warranty is available to the original consumer only. It is not transferable. The warranty is valid only if a new Yamaha Combo Product is purchased from a Combo Product Retailer authorized by Yamaha to sell such products. Contact Yamaha directly if you have any questions in this area.

The warranty as stipulated herein is applicable only in the fifty states of the U.S.A. and the District of Columbia. It is not applicable in the possessions or territories of the U.S.A. or in any other country.

This warranty is the only express warranty which Yamaha makes in connection with your Yamaha Combo Product. Any implied warranty applicable to the product, including the warranty of merchantability is limited to the duration of the express warranty.

Yamaha excludes and shall not be liable in any event for incidental or consequential damages. Some states do not allow limitations on how long an implied warranty may last. Therefore, these limitations and exclusions may not apply to you.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

OWNER'S RESPONSIBILITIES

It is vitally important that you read your Owner's Manual in order that you may be familiar with the proper maintenance and use of your Yamaha Combo Product. It is also necessary that you assume certain responsibilities:

1.   Return the Warranty Registration Card (if provided), or be prepared to provide Proof of Purchase. (Failure to return Registration Card does not affect your warranty.)

2.   Notify your retailer of any alleged defect promptly upon discovery. If your point of concern is not resolved within 45 days, contact Yamaha directly.

3.   Return the product to an authorized dealer, designated Service Agency, or the Yamaha Music Marketing Group Service Division for appropriate repair/services. Units returned to Yamaha must be prepaid. No collect shipments accepted. Units repaired by the MMG Service Center in Buena Park will be returned prepaid.

4.   Consumers electing to return units directly to Yamaha for service, must call for a return authorization. The returned unit must also be accompanied by a note or letter indicating the nature of your points of concern and/or symptoms being experienced.

EXCLUSIONS

Yamaha's warranty does not apply to the following:

1.   Products subjected to abnormal strain, neglect, abuse, modification, or accidental damage. Damaged caused by battery acid is considered neglect.

2.   Products purchased from dealers not authorized to retail Yamaha Combo Products.

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3. Products whose trademark, name, or identification numbers have been altered or removed.

4. Radio frequency interference caused by uncertified and/or illegal equipment.

If you have unresolved points of concern, or in the event a local retailer is not available, please do not hesitate to contact Yamaha directly.

Please fill in the information requested in the spaces provided, then file this warranty with your other documents of importance for future reference.

MODEL _____ SERIAL # _____ SALES SLIP # _____

PURCHASED FROM _____ DATE _____

*Commercial Sound products installed by contractors licensed for such work are warranted for the 1 year period that follows the date of installation.

YAMAHA INTERNATIONAL CORPORATION
MUSIC MARKETING GROUP SERVICE DIVISION
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- Roland is a trademark of Roland Corp, U.S.
- Korg is a trademark of Unicord.
- Linn is a trademark of Linn Electronics, Inc.
- Oberheim is a trademark of Oberheim Electronics, Inc.
- E-mu and Drumulator are trademarks of E-mu Systems, Inc.

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HARDWARE REQUIREMENTS

The Yamaha MIDI Interface Card requires the following hardware in order to operate:

- One Commodore 64 computer with video monitor or television, and one disk drive.

- One YAMAHA MIDI-equipped synthesizer.

- Amplifier, headphones, or other audio monitoring system.

- OPTIONAL - Programmable drum machine.

- OPTIONAL - Yamaha MIDI Drum Sync Cable Kit. (DCK-1)
  To order: Contact your local YAMAHA dealer.
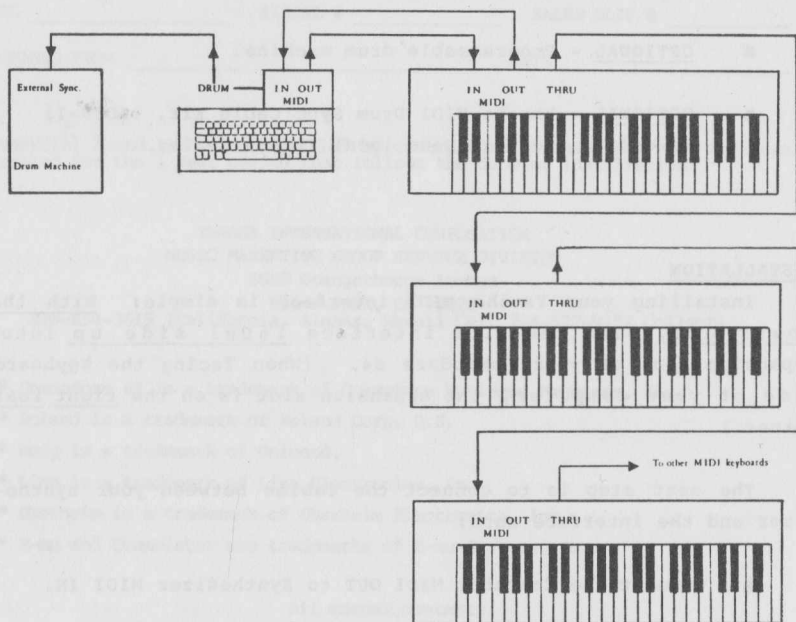

INSTALLATION

Installing your Yamaha MIDI interface is simple: With the power off, plug the MIDI interface label side up into the expansion slot of your Commodore 64. (When facing the keyboard side of your computer, the expansion slot is on the right rear corner.)

The next step is to connect the cables between your synthesizer and the interface card:

- Connect the Computer MIDI OUT to Synthesizer MIDI IN.

- Connect Synthesizer MIDI OUT to Computer MIDI IN.

If you have multiple keyboards in your MIDI system, only one synthesizer is connected directly to the computer. Additional keyboards tie into the system via cables from MIDI THRU on one instrument to MIDI IN on the next keyboard in the chain.

Initially, set all synthesizers to MIDI Channel 01. (For more details see your synthesizer manual.) In multiple-keyboard setups, remember that the synthesizer connected directly to the computer is your <u>recording</u> keyboard. All the other instruments are <u>playback-only</u>.

CONNECTING DRUM MACHINES (OPTIONAL)

Using the Yamaha DCK-1 Drum Sync Cable kit, most brands of drum machine can be integrated into your MIDI system. With Drum Sync, your MIDI system generates the CLOCK & START/STOP signals for the drum machine. (Your drum machine must be capable of accepting external clock signals for this to work.)

The Drum Sync Cable kit consists of two parts: 1) a male-to-male DIN 5-pin cable, and 2) a female DIN "Y" cable terminating with 2 quarter-inch phone plugs.

MIDI-equipped Drum Machines

Drum machines equipped with a MIDI interface are connected via the MIDI IN and THRU jacks, just like any other synthesizer in your system.

Roland or Korg Drum Machines

If you use a Roland, Korg, or other non-MIDI drum machine equipped with a 5-pin DIN socket for external sync:

1) Connect the male-to-male DIN cable from the DRUM output of the MIDI interface to the external sync input on your drum machine.

2) Set the SYNC INPUT/OUTPUT switch on the drum machine to INPUT.

Linn, Oberheim, Drumulator, and others

If you're using a Linn, Oberheim, Drumulator, or other drum machine without a DIN sync connector, you must use both cables in the Drum Sync Cable set.

1) Connect the male-to-male DIN cable to the DRUM output of the MIDI interface.

2) Attach the female DIN "Y" cord to the male DIN cable.

3) Insert the straight phone plug into the CLOCK input of the drum machine, and the right angle phone plug into the START/STOP (or footswitch) input of the drum machine.

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DRUM SYNC CLOCK RATE

The MIDI standard for timing pulses is 24 CLOCK pulses per quarter note, different non-MIDI drum machines use different clock speeds. E-mu's Drumulator uses 12 clocks/quarter note, Roland uses 24 clocks/quarter note, Korg and Linn use 48 clocks/quarter note, and Oberheim uses 96 clocks/quarter note. You will need to take these differences into account when programming your drum machine for synchronization with your MIDI system.
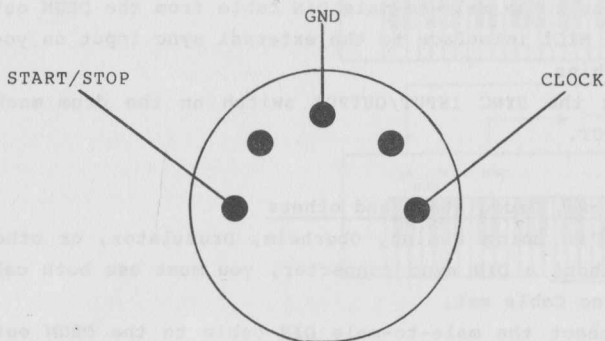
DRUM SYNC PINOUT

The Drum Sync connector puts out two signals:

  START/STOP - Normally held high, pulses low when SPACE BAR
        is pressed.
  CLOCK - - - +5V at a rate of 24 clocks/qtr. note. Normal-
        ally off, turns on when SPACE BAR is pressed.

Here is the pinout for the Drum Sync connector:

MIDI CODES

The following MIDI protocol codes are transmitted (sent) and recognized (received) by Yamaha's Sequencer software.

The codes are grouped into single- or multi-byte messages. The multi-byte messages consist of a STATUS byte, followed by one or more DATA bytes. All STATUS bytes are eight bit numbers with the Most Significant Bit set (=1). DATA bytes have their MSB reset (=0), with legal values ranging from 0 to 127.

Message	STATUS Byte	Number of DATA bytes	Description
TURN KEY OFF	$80	2	Key number (0 - 127) Velocity (0 - 127)
TURN KEY ON	$90	2	Key number (0 - 127) Velocity (0 - 127)
AFTERTOUCH	$D0	1	Amount (0 - 127)
CONTROLLER CHANGE	$B0	2	Controller identification (0 - 121)* Amount (0 - 127)

* (122 - 127) reserved.

Message	STATUS Byte	Number of DATA bytes	Description
PRESET/PROGRAM CHANGE	$C0	1	Preset/program identifier. (0 - 127)
PITCH WHEEL	$E0	2	Pitch wheel change LSByte. (0 - 127) Pitch wheel change MSByte. (0 - 127)
MIDI SYSTEM TIMING CLOCK	$F8	0	System is synchronized w/ this clock, sent at 24 clocks/quarter note.
START	$FA	0	Sent when SPACE key is pressed.
CONTINUE	$FB	0	Sent after PAUSE and RESTART.
STOP	$FC	0	Sent at end of sequence.
MIDI ACTIVE SENSING	$FE	0	Sent at 24 clocks per quarter note.

⊛ YAMAHA

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